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# **McGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS**

**Sixth  
Edition**

**McGraw-Hill**

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On the cover: Representation of a fullerene molecule with a noble gas atom trapped inside. At the Permian-Triassic sedimentary boundary the noble gases helium and argon have been found trapped inside fullerenes. They exhibit isotope ratios quite similar to those found in meteorites, suggesting that a fireball meteorite or asteroid exploded when it hit the Earth, causing major changes in the environment. (Image copyright © Dr. Luann Becker. Reproduced with permission.)

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#### McGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS, Sixth Edition

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## laminar composite

wavelength of the wave. **laminar** **flow** [MECH] From the surface and the flow is laminar. { 'lam-ə-när 'baün-flo } **laminar composite** [MATER] A composite material that consists of two or more layers of different materials that are bonded together. { 'lam-ə-när kəm'páz-ət }

**laminar flow** [FL MECH] Streamline flow of an incompressible viscous Newtonian fluid; all particles of the fluid move in distinct and separate lines. { 'lam-ə-när 'flō }

**laminar flow control** [AERO ENG] The removal of a small amount of boundary-layer air from the surface of an aircraft wing with the result that the airflow is laminar rather than turbulent; frictional drag is greatly reduced. { 'lam-ə-när 'flō kən-trol }

**laminariales** [BOT] An order of brown, large, structurally complicated, often highly differentiated members, commonly called kelps, of the algal class Phaeophyceae; distinctive features include a life history in which microscopic, filamentous, dioecious gametophytes alternate with a massive, parenchymatous sporophyte, and a mature sporophyte typically consisting of a holdfast, stipe, and one or more blades. { 'lam-ni-ər-ə-lēz }

**Laminariophyceae** [BOT] A class of algae belonging to the division Phaeophyta. { 'lam-ni-ər-ə-fē-sē-ə } **laminar sublayer** [FL MECH] The laminar boundary layer underlying a turbulent boundary layer. { 'lam-ə-när 'sōb-lā-ər }

**laminar wing** [AERO ENG] A low-drag wing in which the distribution of thickness along the chord is so selected as to maintain laminar flow over as much of the wing surface as possible. { 'lam-ə-när 'wīng }

**laminate** [MATER] A sheet of material made of several different bonded layers. { 'lam-ə-nāt }

**laminate composite** [MATER] A composite material consisting of layers of various materials. { 'lam-ə-nāt-əd kəm'páz-ət }

**laminate contact** [ELEC] Switch contact made up of a number of laminations, each making individual contact with the opposite conducting surface. { 'lam-ə-nāt-əd 'kān-takt }

**laminate core** [ELECTROMAG] An iron core for a coil transformer, armature, or other electromagnetic device, built up from laminations stamped from sheet iron or steel and more or less insulated from each other by surface oxides and sometimes also by application of varnish. { 'lam-ə-nāt-əd 'kōr }

**laminate glass** See nonshattering glass. { 'lam-ə-nāt-əd 'glas }

**laminate metal** [MET] A sheet or bar of composite metal composed of two or more bonded layers. { 'lam-ə-nāt-əd 'mēt-əl }

**laminate plastic** [MATER] A thin sheet made of superposed layers of plastic bonded or impregnated with resin or compressed under heat. { 'lam-ə-nāt-əd 'plās-tik }

**laminate spring** [DES ENG] A flat or curved spring made of thin superimposed plates and forming a cantilever or beam of uniform strength. { 'lam-ə-nāt-əd 'sprīng }

**laminate wood** [MATER] Board or timber composed of layers of wood glued together with the grains parallel. { 'lam-ə-nāt-əd 'wūd }

**lamina terminalis** [ANAT] The layer of gray matter in the brain connecting the optic chiasma and the anterior commissure where the latter becomes continuous with the rostral lamina. { 'lam-ə-nā-tōr-mā-nālēz }

**lamination** [GRAPHICS] A plastic protective film on a printed sheet that has been bonded by heat and pressure. [MATER] One of the thin punchings of iron or steel used in building up a laminated core for a magnetic circuit. [MED] An operation in embiotomy in which the skull is cut in slices. [SCI TECH] Arrangement in layers. { 'lam-ə-nā-tōr-mā-nālēz }

**laminectomy** [MED] Surgical removal of the lateral portion of the neural arch from one or more vertebrae. { 'lam-ə-nek-tōmē }

**laminite** [GEOL] Any sedimentary rock composed of millimeter- or finer-scale layers. { 'lam-ə-nīt }

**laminography** See sectional radiography. { 'lam-ə-näg-rā-fē }

**lamin's theorem** [MECH] When three forces act on a particle in equilibrium, the magnitude of each is proportional to the sine of the angle between the other two. { 'lam-nēz, thir-əm }

**lamp** [ENG] A device that produces light, such as an electric lamp. { 'lamp }

**lampadite** [MINERAL] A mineral composed chiefly of hydrous manganese oxide with as much as 18% copper oxide and often cobalt oxide. { 'lam-pā-dīt }

**lamp bank** [ELEC] A number of incandescent lamps connected in parallel or series to serve as a resistance load for full-load tests of electric equipment. { 'lamp ,bānk }

**lampblack** [MATER] A grayish-black amorphous, practically pure form of carbon made by burning oil, coal tar, resin, or other carbonaceous substance in an insufficient supply of air; used in making paints, lead pencils, metal polishes, electric brush carbons, crayons, and carbon papers. { 'lamp,blāk }

**lampbrush chromosome** [CELL MOL] An exceptionally large chromosome characterized by fine lateral projections which are associated with active ribonucleic acid and protein synthesis. { 'lamp,brūsh 'krō-mō-sōm }

**lamp cabin** See lamp room. { 'lamp ,kab-ən }

**lamp-charging rack** [MIN ENG] Mine-lamp-charging racks which allow miners to store lamp units for recharging after daily use. { 'lamp ,chār-jīng ,rāk }

**lamp cord** [ELEC] Two twisted or parallel insulated wires, usually no. 18 or no. 20, used chiefly for connecting electric equipment to wall outlets. { 'lamp ,kōrd }

**lamp depreciation** [ELEC] The decrease in amount of light emitted by a lamp during its operating life. { 'lamp di-prē-shē-ə-shēn }

**lampholder** [ELEC] A device designed to connect an electric lamp to a circuit and to support it mechanically. { 'lamp-hōld-ər }

**lamphouse** [ENG] 1. The light housing in a motion picture projector, located behind the projector head ordinarily consisting of a carbon arc lamp operating on direct current at about 60 volts, a concave reflector behind the arc which collects the light and concentrates it on the film, and cooling devices. 2. A box with a small hole containing an electric lamp and a concave mirror behind it, used as a concentrated source of light in a microscope, photographic enlarger, or other instrument. { 'lamp-hōus }

**lamping** [MIN ENG] Use of a portable ultraviolet lamp to reveal fluorescent minerals in prospecting. { 'lam-pīg }

**lamp inrush current** [ELEC] The surge of current that occurs when an incandescent lamp is turned on. { 'lamp 'in-rāsh ,kōr-ənt }

**lampman** [MIN ENG] A person responsible for maintaining and servicing miners' lamps. { 'lamp-mān }

**lamp oil** See kerosine. { 'lamp ,ōil }

**lamprey** [VERT ZOO] The common name for all members of the order Petromyzonida. { 'lam-prē }

**Lampridiformes** [VERT ZOO] An order of teleost fishes characterized by a compressed, often ribbonlike body, fins composed of soft rays, a ductless swim bladder, and protractile maxillae among other distinguishing features. { 'lam-prid-ē-fōr-mēz }

**lamprobolite** See basaltic hornblende. { 'lam-prōbōlīt }

**Lamprocystis** [MICROBIO] A genus of bacteria in the family Chromatiaceae; cells are spherical and motile, have gas vacuoles, and contain bacteriochlorophyll *a* on vesicular photosynthetic membranes. { 'lam-prōsīs-tēz }

**lamp room** [MIN ENG] A room or building at the surface of a mine for charging, servicing, and issuing all cap, hand, and flame safety lamps. Also known as lamp cabin; lamp station. { 'lamp ,rōm }

**Lampropedia** [MICROBIO] A genus of gram-negative, obligately anaerobic cocci of uncertain affiliation; cells form pairs, tetrads, or flat squared tablets. { 'lam-prō-pē-dē-ə }

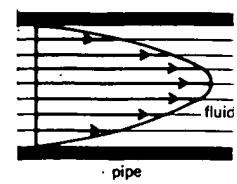
**lamprophyllite** [MINERAL]  $\text{Na}_2\text{SrTiSi}_2\text{O}_8$  A mineral composed of titanium strontium sodium silicate. { 'lam-prō-fīlīt }

**lamprophyre** [PETR] Any of a group of igneous rocks characterized by a porphyritic texture in which abundant, large crystals of dark-colored minerals appear set in a not visibly crystalline matrix. { 'lam-prō-fīr }

**lampshade paper** [MATER] Paper that is translucent and either flame-resistant or flame-retardant; often made of wood pulp, vegetable parchment, or laminated glassine. { 'lamp-shād-pā-pōr }

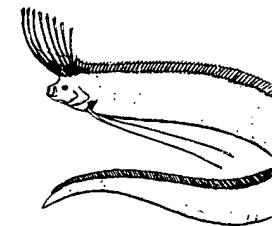
**lamp station** See lamp room. { 'lamp ,stā-shōn }

## LAMINAR FLOW



Laminar flow in a circular pipe. In this case the velocity adjacent to the wall is zero and increases to a maximum in the center of the pipe.

## LAMPRIDIFORMES



lamprey (Regalecus glesne); length to over 20 feet (6 meters).

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# **ENCYCLOPEDIA OF POLYMER SCIENCE AND ENGINEERING**

**VOLUME 8**

**Identification  
to  
Lignin**

A WILEY-INTERSCIENCE PUBLICATION

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**LABORATORY POLYMERIZATION PROCEDURES.** See  
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**LAC.** See RESINS, NATURAL.

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**LACTAM POLYMERS.** See POLYAMIDES; *N*-VINYLMICRO POLYMERS.

**LACTONES.** See POLYESTERS.

**LADDER AND SPIRO POLYMERS.** See SPIRO AND LADDER POLYMERS.

## **LAMINATES**

Laminates consist of layers or laminae bonded together by suitable binders. The laminae are usually materials, such as paper or woven fabrics, which are readily available in continuous-sheet form. The binders are synthetic resins, predominantly phenolic resins, which are solvent-coated or impregnated into the base laminae. After drying, several laminae are stacked and the entire mass is consolidated under heat and pressure to form a rigid sheet or panel utilized for its mechanical, electrical, chemical, or aesthetic qualities.

Some writers have suggested that laminating had its origins in antiquity, pointing to the bonding of papyrus with natural gums and resins by the Egyptians. Modern practices, however, can easily be traced to the advent of synthetic phenol-formaldehyde resins as developed by Baekeland in 1907. Phenolic resins are inherently brittle and are usually processed by adding reinforcing fillers, followed by molding under heat and pressure. Layers of reinforcement, such as cotton fabric, strengthened the resin, which could then be made available in large sheets suitable for fabrication into many useful articles. Thus, the primary rea-